STATEMENT OF THE HONORABLE DONALD D. ENGEN, FEDERAL AVIATION ADMINISTRATOR, BEFORE THE HOUSE COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION, SUBCOMMITTEE ON AVIATION, CONCERNING PENDING AVIATION LEGISLATION. AUGUST 2, 1984.

Mr. Chairman and Members of the Subcommittee:

I welcome the opportunity to appear before you today on a variety of bills pending before the Subcommittee. All of these bills deal with aircraft cabin safety issues or problems, the preponderance of which are being pursued actively by the FAA. A number of the cabin safety areas are covered in several of the bills. Therefore, rather than provide a point-by-point response to each of the nine bills, I would like to give you my overall position on the pending legislation and then provide you with the status of our efforts in the cabin safety areas covered by the bills. I will, however, respond more directly to S. 197 and H.R. 1550 since they are different than the other bills, calling for studies rather than legislatively imposing regulatory requirements.

I want to begin by making unequivocally clear that both Secretary Dole and I are fully committed to achieving the basic purpose of most of these bills--improved cabin safety. We share with you the frustration arising from the length of time it has taken for some of these proposals to reach their present state of development. I can assure you, however, that we intend to move forward expeditiously to issue regulations which

will improve cabin safety, as I will discuss in more detail later in this testimony.

POSITION ON LEGISLATION

Apart from the two bills calling for studies, the bills pending before the Subcommittee would direct the FAA to promulgate final rules on a wide range of cabin safety subjects. In nearly every case, the FAA already has underway rulemaking activity which would meet in whole or large measure the bills' requirements. In some cases, we are examining comments received from the public in response to published Notices of Proposed Rulemaking so that we can make a decision regarding a final rule. In other cases, we are developing proposed rules in order to solicit public commentary in accordance with the Administrative Procedure Act. In a few instances, we are examining an issue to determine whether rulemaking activity is necessary. In each case, the FAA is actively taking action to better define the problem, to quantify it, or to solve it.

Enactment of the legislation pending before you seeks to provide legislative solutions to issues solved best by the regulatory process. It is not clear that the timetables contemplated in some of the legislation are reasonable; equally, it is not clear that all issues should be solved in the ways contemplated by the various bills. Are new

regulations necessary? What should the extent of those regulations be? How can they maximize safety benefits while minimizing cost to the American travelling public? Will they adversely impact small business and, if so, what are the alternatives? When should they be effective? Should they be phased in and, if so, on what schedule? These are the very kinds of issues for which the regulatory process has been established by the Congress. The Congress recognized that developing the appropriate expertise and solving problems of this level of detail on the wide range of issues which confront the Congress was simply not feasible in the legislative environment. Therefore, the Congress established regulatory agencies to assemble the expertise needed, and required these agencies to involve the public in the regulatory process. These processes are in place in the FAA and, on balance, have worked well in helping to make our air transportation system the safest in the world. They are working now in terms of defining appropriate solutions in the cabin safety area.

I believe firmly that the FAA is on the right course in addressing cabin safety problems, and that solutions will be forthcoming both in a timely and appropriate manner, taking into account the full range of commentary and views provided by the public in response to our regulatory proposals. There is no question in my mind that we will achieve better results through committing the resolution of these issues to the

regulatory process, with appropriate Congressional oversight, than by imposing inflexible legislative "solutions."

I understand the concerns and frustrations of some Members in believing that the FAA has failed to move quickly enough to take firm regulatory action to solve various problems associated with aircraft accidents. I do not intend to offer excuses concerning the time it has taken us to get where we are in our cabin safety program. I do intend though to assure you that I am firmly committed to completing our cabin safety agenda now, not later. Major steps we have taken within the past year should be a clear indication to you that the agency has moved from the research phase in a number of these areas to the "action" phase. You will continue to see steady and positive progress, with a number of actions to be taken during the next several months. I have made it absolutely clear to my staff--and the Secretary is as committed as I am on this issue--that our efforts will not let up, and that we will meet the deadlines we have established for ourselves.

I recognize that some Members of the Subcommittee are concerned that our plans of today might be abandoned; that our emphasis in these programs may shift. I don't view that as a possibility, given the tremendous amount of work we have dedicated to these issues over the years and the substantial focus placed on these programs by ourselves, the Congress, the media, and the

public. Therefore, I ask that the Subcommittee give the regulatory process the opportunity to work. Deferring action on the bills before you does not close the door on a possible legislative solution should a subsequent review indicate that needed regulatory solutions have been dismissed by the FAA. I have full confidence, as I stated a moment ago, in the current direction of our program, and in achieving short-term results.

I would like to provide you now with an overview of where we stand on the issues contained in the bills pending before you. I will also mention a few program areas, such as child restraint systems, even though they are not contained in the bills since I know they are of general interest to the Subcommittee.

Child Restraints

On May 28, 1982, the FAA issued Technical Standard Order (TSO) C-100 which for the first time provided criteria for approval of child restraint devices for use on board aircraft. The TSO required compliance with the Federal Motor Vehicle Safety Standard No. 213, Child Restraint Systems, and three additional test requirements considered representative of the unique aircraft environment. To date, 36 models of child restraint devices, accounting for about 3.5 million actual seats, are considered acceptable for use on aircraft. In addition, the

FAA provides a 24-hour phone service to assist the public in determining which devices are approved.

The Department of Transportation is planning to combine the performance standards needed to assure safe usage in the aviation environment with the existing child restraint system requirements in Federal Motor Vehicle Safety Standard No. 213. When this combined amended Standard No. 213 is issued, each child restraint manufacturer will have a single regulation to address in its certification of restraint devices and will have a single agency (the National Highway Traffic Safety Administration) with which to deal in the Department of Transportation. Following this effort, the FAA will withdraw TSO-C100.

Life Preservers

On January 3, 1983, the FAA issued TSO-C13d which contained improved requirements for life vests to be used aboard aircraft. The improvements include a donning requirement of 15 seconds unassisted while seated, a 30-second donning requirement on a child or infant by another adult, increased bouyancy and flotation attitude requirements, and the creation of an infant category of life preservers. The TSO, in addition, requires that after January 3, 1985, no previously approved TSO-C13 designs may be marked as FAA TSO-approved. This, in effect, requires virtually all newly purchased life

preservers for airline use to meet the improved standards. In addition, we are considering the issuance of a new TSO dictating a simple design and standard and an NPRM requiring operators to use life preservers meeting that TSO.

Emergency Evacuation Slides, Ramps, and Slide/Raft Combinations

On June 3, 1983, the FAA issued TSO-C69a which made general improvements to evacuation equipment requirements and contained new criteria to improve the radiant heat resistance of the equipment. The new criteria significantly improves the ability of these passenger evacuation devices to remain operative in the presence of a reasonably close, large, fuel-fed fire. The revised TSO requires that, after December 3, 1984, devices which do not meet the new radiant heat criteria could no longer be marked as FAA TSO-approved. This, in effect, requires all newly purchased evacuation slides for airline use to meet the improved standards. We are investigating now how quickly these improved slides are entering airline service to assess if regulatory action is necessary to require replacement of older slides.

Crew Protective Breathing Equipment

On June 27, 1983, the FAA issued TSO-C99 which established criteria for the protective breathing equipment for air

transport crew members. This TSO uses as its basis an SAE Aerospace Standard, which itself is based upon research and development accomplished at the FAA Civil Aeromedical Institute. The new standard requires a full-face oxygen mask or a combination of smoke goggles and oxygen mask with positive purging of the smoke goggles to preclude fogging or the buildup of irritant gases that might impair vision.

The FAA is finalizing action on a regulatory proposal to provide flight crew members on air carrier aircraft with protective breathing equipment meeting this new TSO, and to provide portable protective breathing equipment for flight attendants to assist in fighting fires as well as require improved "hands on" training for them in fighting typical aircraft fires. The FAA expects to complete its efforts on this regulatory proposal by October 31, 1984, at which time it will undergo Executive Branch coordination prior to issuance for public comment.

Flammability Requirements for Aircraft Seat Cushions

On October 11, 1983, the FAA published proposed new standards which, if adopted, would significantly reduce the flammability of present day foam cushions. The proposal contains new laboratory tests and acceptance criteria that were developed as a result of extensive full scale testing at the FAA Technical Center. The proposed test is representative of a post-crash,

high-intensity fuel fire. Full scale testing has shown that aircraft cushions designed to meet these criteria delay the onset of ignition within the cabin and reduce the spread of flame and products of combustion in the cabin. A significant increase in post-crash evacuation and survival time can be gained through the use of these new cushions. In a specific test, 40 seconds improvement in evacuation time was documented. Cushions of materials that meet the proposed standard reduce the spread of inflight fires as well. The FAA proposed that, within 3 years of the effective date of the rule, all seat cushions on existing airplanes type certificated after 1958 (the "jet air carrier fleet") be required to comply with the new requirements. The FAA plans to complete its action on these proposals by September 30, 1984.

Floor Proximity Lighting

On October 11, 1983, the FAA published proposed standards for floor proximity emergency escape path marking to provide visual guidance for emergency cabin evacuation when all sources of cabin lighting more than 4 feet above the aisle floor are totally obscured by smoke. The proposal resulted from research that shows such marking significantly increases the ability of passengers to evacuate a smoke-filled aircraft. The FAA has proposed that, after 2 years following the effective date of a final rule, all inservice airplanes type certificated after

1958 be required to comply with the new design standards. The FAA plans to complete its action on the proposal by October 31, 1984.

Class D Cargo Compartments

The FAA has drafted a notice of proposed rulemaking to improve fire safety standards for Class D cargo compartments, and transmitted it for coordination within the Executive Branch. The proposed standards upgrade the fire test criteria for the Class D compartment ceiling and wall liners and limit the total size of Class D compartments. The proposals result from full-scale testing of typical compartments to establish criteria representative of "typical" fires and the development of a laboratory test that properly simulates those fires. The proposal does not envision requiring cargo compartment fire extinguishers because fire extinguishment is addressed by confinement and ventilation control in Class D compartments.

Fire Extinguishers and Smoke Detectors

On May 17, 1984, the FAA published proposed standards for air carrier airplanes to require each lavatory and galley to be equipped with a smoke detector system and for each lavatory trash receptacle to be equipped with an automatic fire extinguisher. It also calls for an increased number of fire

extinguishers throughout the cabin, at least two of which must contain Halon 1211 as the extinguishing agent. A compliance time of one year after issuance of the final rule is proposed to permit a reasonable time for procurement of equipment and aircraft scheduling through carrier maintenance bases. The comment period on the NPRM closes September 14, 1984. The FAA plans to complete its action on the proposals by December 31, 1984.

Improved Passenger Seat Standards

The FAA is entering the final phase of an over-four year effort to improve occupant survivability in aircraft seats when subjected to the accelerations resulting from typical survivable accidents. The final phase consists of three advisory circulars (AC) and regulatory proposals for general aviation, transport, and rotorcraft seats.

- Advisory Circular on Human Impact Tolerance - The FAA is finalizing an advisory circular that will suggest human tolerance criteria to be used as performance standards in future regulations. In soliciting comments on this advisory circular in the Federal Register, the FAA will also outline its complete seat standards program and advise the public of planned dates for completion of each phase.

The FAA expects to complete its action on this advisory circular by the end of this month.

o Crash Scenario Advisory Circulars - The FAA is preparing advisory circulars that outline how the improved regulatory seat test criteria were developed, the types of accidents considered, the types of aircraft considered, and how to arrive at equivalent seat test criteria should aircraft be developed that are not representative of those used to develop the regulatory standards. These advisory circulars will be published for comment together with the improved seat standard NPRM to provide for a more comprehensive understanding of the agency's intentions in this area, rather than separately as originally planned. We expect these proposed new seat standards to be stringent, and do not want the public debate over the need for them and their costs and benefits to be diffused or even delayed by debate over these individual components of the whole package.

o Analytical Modeling Techniques Advisory Circular - The FAA is also developing an advisory circular which summarizes the type of analytical modeling techniques available and what types of analyses would be necessary and sufficient to demonstrate compliance with the new proposed seat standards. This advisory circular will also be published

for comment along with the improved seat standard notice, for reasons just discussed.

- o Improved Seat Standards Regulation- The FAA is presently defining and developing new seat standards for aircraft. These are in the form of dynamic test criteria that are representative of typically survivable accidents, with a different test criteria to be proposed for small airplanes, transport airplanes, and rotorcraft due to the different crash scenarios for each of these category of aircraft. At present, the FAA envisions a rule that in effect proposes a representative dynamic criteria and a performance standard that uses the defined human impact tolerance as the pass-fail measure. The FAA expects to complete its actions on the new proposed standards by June 15, 1985.

Antimisting Kerosene

The FAA is preparing a regulatory proposal concerning implementation of the antimisting kerosene technology developed by the FAA over the past 4 years. Present plans are to propose that after a yet-to-be determined date which would be dependent upon a completion of an economic impact analysis, all air carrier airplanes would have to use fuel that meets a new antimisting fuel standard. The FAA expects to complete its efforts on this proposal by December 31, 1984, at which time it will undergo

Executive Branch coordination prior to issuance. I might note that this proposal will differ from our normal practice, in that we have demonstrated technological feasibility but have not developed a total certified flightworthy system. Accordingly, we expect considerable debate on this issue. We will demonstrate the fire protection available through the use of AMK in a Controlled Impact Demonstration at Edwards Air Force Base in California. The demonstration will also include evaluation of improved crashworthiness features, including energy absorbing seats. We and NASA will be selecting a target date for the impact demonstration within the next several weeks, with the date expected to be in the mid-September to mid-October time frame.

Interior Materials

The FAA plans to propose improved standards for transport airplane cabin interior materials, including sidewalls and ceiling panels. We are presently completing research and development at the Technical Center that will culminate in these new criteria. The improved interior materials combined with the improved seat fire standards should greatly reduce the spread of fire within the cabin. The FAA expects to complete its efforts on the proposal by December 31, 1984, at which time it will be submitted for Executive Branch coordination prior to issuance.

Evacuation of Smoke from the Cabin Environment

At our Technical Center, we are evaluating smoke removal procedures under simulated flight conditions. Each manufacturer now must demonstrate the procedures it has developed for a particular aircraft type to evacuate smoke. These procedures differ for each manufacturer. We are exploring the feasibility of developing standardized and improved procedures for smoke evacuation, based on information concerning past approvals for different designs and the test data being developed at our Technical Center. Longer range, we are evaluating smoke generators to determine if a ground-based Boeing 707 fuselage can be pressurized as a facility to explore various methods and procedures of cabin smoke evacuation that might be more effective. A concern in this area of course is whether various venting techniques might increase rather than diminish a fire. We don't have answers in this area yet, but our program calls for full-scale tests in Fiscal Year 1987 and completion of systems analysis in November 1988. It is important to recognize that smoke venting procedures exist now; they work, and it may not be technically feasible to improve upon any or all of them. We cannot say for sure until we complete the analysis.

Fire Protection Systems using the Total Flood Concept

We will be evaluating the effectiveness of an on-board total flood foam/water sprinkler system, and will perform a design study and cost assessment for the most promising system. System performance will be evaluated under a number of fire intensities. The program will be completed by November 1986.

Neat agent toxicity of Halon total flood systems can be a problem if a compartment is not adequately ventilated, and so can products of combustion of these suppressants. We have information on a small, nonpressurized aircraft. Evaluation of agent concentration and decay will be conducted, and data extrapolated to a large, pressurized aircraft insofar as possible. Additional tests may be required of large aircraft.

Communication Between Flight and Cabin Crew

The FAA issued an Air Carrier Operations Bulletin on July 2, 1984 which responds to the NTSB recommendation for better coordination between flight and cabin crewmembers during emergency conditions. The Bulletin requires our principal operations inspectors to review their operator's training programs and operational manuals to assure that a safe and effective means of communication and coordination is

established between flight and cabin crewmembers. Insofar as public address systems are concerned, the FAA currently requires them to be operated independently of the aircraft intercom system and they are considered to be an installation whose functioning is required and which is an essential load at the power supply, meaning they are one of the last systems to be shed in the event of an emergency. We will consider for new aircraft designs the requirement that public address systems be powered by an independent power system.

On-Board Medical Kits

We are working on a proposal to expand the types of equipment and medical supplies to be carried in airline medical kits. We expect to have issued a notice of proposed rulemaking and submitted it for coordination within the Executive Branch by November 1984. Equipment and drugs would be proposed to offer initial treatment to individuals suffering from heart attacks, seizures, allergic reactions, bleeding, or choking. Insofar as the Good Samaritan portions of the various bills pending before the Subcommittee are concerned, we do not take a position. The Department of Justice will speak for the Executive Branch on this issue.

S. 197/H.R. 1333 Studies

The FAA has testified in substantial detail on two separate occasions before the Senate Subcommittee on Aviation on the general issues contained in S. 197 and H.R. 1333. Rather than go into that level of detail since I am aware that your staff has the pertinent hearing records, let me briefly speak to the primary issues for which studies have been proposed in areas that I have not previously touched on today.

o Air Quality (fresh air/humidity/contamination limits): On May 25, 1984, I wrote to EPA Administrator Ruckelshaus and asked for his agency's assistance in conducting a study of air quality. We have just heard back from EPA on this issue, and we are confident they will be able to assist us in this effort. I want to make clear, however, that our intended review of this area is not in response to any known problems, but in recognition that it has been a number of years since this area has been studied. We will be pleased to keep the Subcommittee apprised of our efforts in this area.

o Pressurization: Aircraft are designed now so that cabin altitude does not exceed 8,000 feet of altitude. This level of pressurization is fully satisfactory for the vast majority of the travelling public, including those with mildly symptomatic

and cardiorespiratory problems. We and the medical community recognize, however, that aircraft flight can represent health hazards to those with heart problems. In fact, to assist in communicating this kind of information to the medical community, we purchased reprints of an American Medical Association article concerning the risks of air travel for those with heart problems and distributed copies to our network of aviation medical examiners. We will not expend further funds exploring this issue since any change in pressurization requirements for aircraft would dictate fundamental structural changes costing billions of dollars. Therefore, we do not believe it necessary or worthwhile to expend resources or funds to examine the issue of pressurization limits.

o Preflight/inflight health and safety instructions relating to airline cabin air quality: We do not agree with the need to expend additional resources or funds studying this issue. We believe that efforts to improve briefings should continue to be directed primarily towards those areas currently required to be covered in passenger briefings so as to increase the effectiveness of current programs. Should additional devices be required aboard aircraft to provide safety enhancements to passengers, we will require that appropriate briefing material be included on those topics as well. The subject of passenger briefings will be thoroughly discussed by the FAA and the user community in Session Number 5 of the Aircraft Cabin Safety

seminar. This portion of the seminar, focused on passenger education, involves the following areas: a comparison of live briefings with televised briefings, the use of emergency briefing cards, the effect of voice quality on passenger attentiveness, departure lounge self-briefing material, briefing message content, and the like.

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In closing, Mr. Chairman, I want to assure you of my commitment toward accomplishing many of the same objectives contained in the bills pending before you. I intend to accomplish them in as timely a way as I can. But I need the kind of flexibility which is offered by the regulatory rather than legislative process. I welcome your continued review of our progress in accomplishing the milestones I have enunciated today. I believe they are attainable and will do my best to see that they are attained. I intend for our regulations to maximize safety to the American travelling public without inhibiting its ability to use air travel because of unreasonable added costs.

That completes my prepared statement. I would be pleased to respond to questions you might have at this time.